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AUTHOR	Sullivan, Arthur F.
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ABSTRACT

This report recommends the formal organization of a cost reduction program for a school system, outlines a structure, and suggests some techniques for implementation. It defines a cost reduction program as a formal, systematic effort of major status designed by an organization to keep its operating costs at a minimum, while providing predetermimed quality products and services. It suggests that such a program is valuable to management even if costs are not excessive and individual organizational units observe normal concern in controlling expenditures. The report considers the purposes and functions of a cost reduction program and the responsibility for and the methods of program implementation. It details the structure of the program committee and explains the program's monitoring and reporting systems. The document also considers some specific techniques with cost reduction implications for school systems, and provides a manual of regulations for cost reduction and estimated costs and a time schedule for program implementation. (Author/DN)

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A PROPOSED PLAN FOR ESTABLISHING A COST REDUCTION PROGRAM AND MONITORING SYSTEM FOR THE WORCESTER PUBLIC SCHOOLS

Arthur F. Sullivan
Associate Superintendent
Worcester Public Schools
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1. What A Cost Reduction Program Is

A "Cost Reduction Program" is a formal, systematic effort, of major status, designed by an organization, to keep its operating costs at a minimum, while providing predetermined quality products and services.

It is a monitoring-type operation.

It places a burden upon administration. The burden is expected and is justifiable.

Its overall responsibility resides in the office of the Superintendent of Schools.

Its proximate success depends upon its structure and organization.

Its ultimate success is the responsibility of the total school system, through its line operations of instruction, personnel, plant, and business.

It operates mainly through school-system staff and through a set of procedures and techniques. Consultants and specialists from business and industry are utilized.

Every large organization should have a cost reduction program.

While it could be true that (1) expenditures may not be excessive and in fact may be at the ideal minimal level and (2) individual organizational units observe normal concern in controlling expenditures, there is a managerial advantage in having a Cost Reduction Program which in its operation is formal and systematic.

Business and industrial organizations over many years have developed and relied upon sophisticated cost reduction programs.

The purpose of this report is to recommend the formal organization of a Cost Reduction Program for the Worcester Public Schools, to outline a structure, and to suggest some techniques for implementation.

Specific benefits of the plan, of course, would emanate from its implementation and operation. While in some applications of the program, immediate cost reductions would result, other applications would incur supportive expenditures at first, to be followed by cost reduction over a period of time.

2. Purposes

Basically, the purposes of a Cost Reduction Program are:

1. to continually lower the overall cost of operating an organization while maintaining and/or improving the quality of the product
2. to anticipate rises in costs and to take action to counteract such rises
3. to develop a consistent plan for all divisions and departments which would utilize the ideas of one in the solution of the problems of the other
4. to keep in the forefront at all times the importance of holding expenses to the ideal minimum
5. to generate motivation for cost reduction
6. to involve all staff personnel in the process of cost reduction
7. to monitor and to report major variable expenses periodically, and to take appropriate investigative and administrative action on a follow-up basis
8. to produce and continually up-date a system of policy and operating procedures to be observed in the effort to reduce costs
9. to review the resources available for obtaining surplus and low-cost materials

3. Functions

The operation of the proposed cost reduction program would consist of four essential functions:

1. Cost Control
2. Cost Reduction
3. Cost Monitoring
4. Cost Reporting

The "Cost Control" effort asks the broad question: "Are some costs being incurred which need not be incurred?"

The "Cost Reduction" aspect asks the questions: "What items that are being purchased can be purchased for a lesser amount?" "What items are over-qualified for the purposes for which they are purchased?"

The "Cost Monitoring" program attempts to keep a check on expenditures, to determine reasonable variances, and to generate a signal when something is wrong.

The "Cost Reporting" program summarizes in chart or statistical form, the characteristics of the more significant cost items. Its purpose is to provide data for information and decision making.

4. Responsibility

As indicated earlier overall responsibility for the Cost Reduction Program would be in the Office of the Superintendent of Schools.

Also, responsibility for the Cost Reduction Program would have two further aspects:

1. Organizational and Structural

   which would include the establishment of the program and the outlining of procedure to the administrators of the four divisions - instruction, personnel, plant, and business

   -this would be the responsibility of the manager of the program

2. Operational and Implementational

   which would include the actual application of cost reduction techniques to everyday operations

   -this would be the responsibility of the administrators in charge of the various divisions and departments of the school system

The broad base of the program would extend throughout the entire school system. All personnel in some way would contribute to its operation and effectiveness. In fact, the success of the program would depend considerably upon the ideas, suggestions, and interest of personnel. An incentive schedule for major cost reduction suggestions should be a consideration.

A great deal of basic information and tested techniques already exist within the school system. In this regard the need is correlating present methods with those to be developed, to produce a meaningful total program.

5. Method of Implementation

The essential structural elements of the program would consist of the following:

1. the "Manager, Cost Reduction Program," who would have organizational responsibility for the system-wide Cost Reduction Program; this would be a "functional title" and as such would represent one of a cluster of related duties.
2. the "Cost Reduction Program Committee," which would serve as advisor to the Superintendent of Schools

The essential implementational elements of the program would consist of the following:

1. The procedures and techniques of the program, which would be implemented by the various divisions and departments of the school system, through line operations.

6. Committee Structure

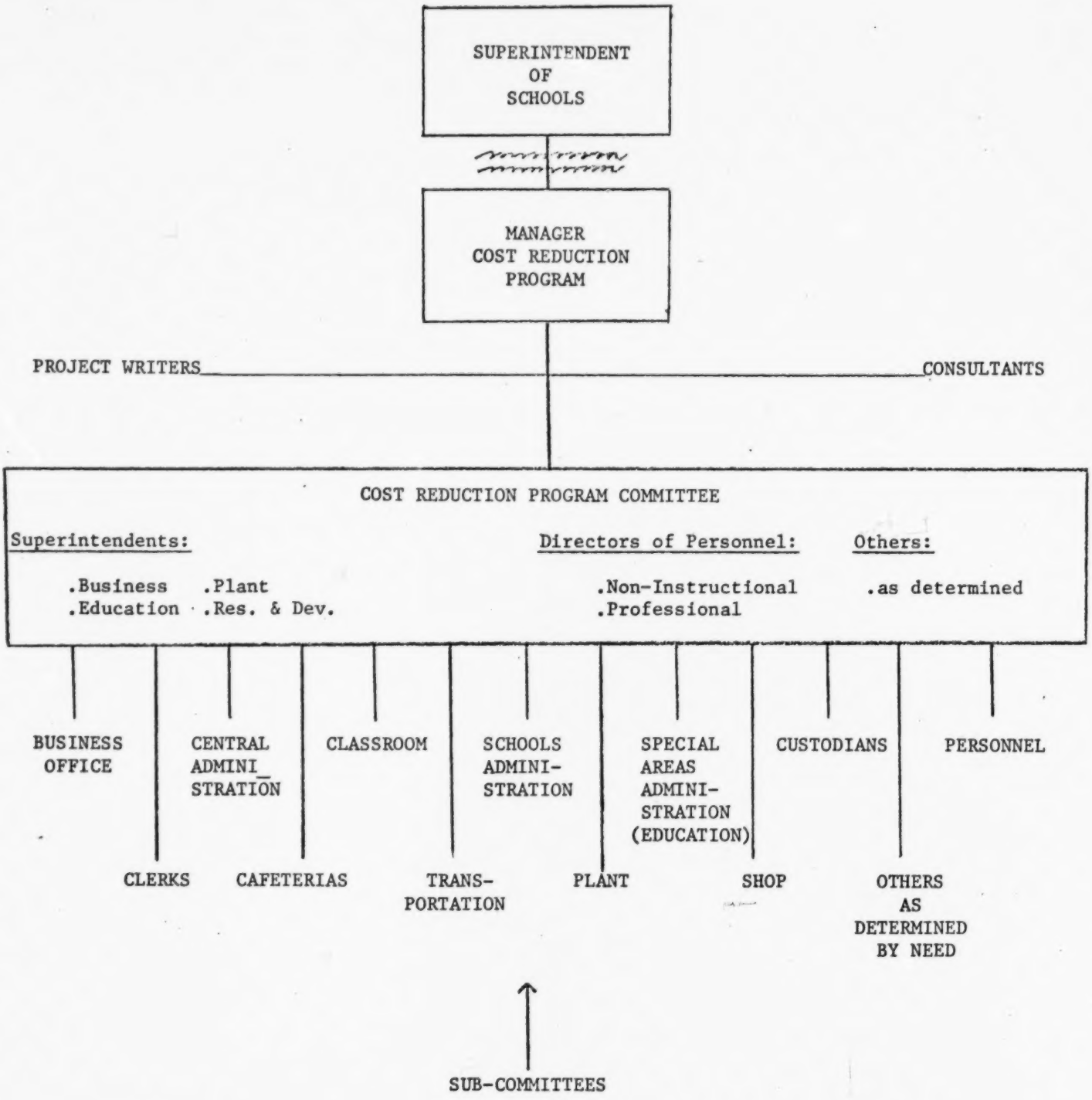
The Cost Reduction Program Committee structure would consist of two types of committees:

1. the overall Cost Reduction Program Committee
2. special-area sub-committees

COST REDUCTION PROGRAM

ORGANIZATIONAL

CHART



The Cost Reduction Program Committee

It is proposed that:

1. the chairman of the committee be the Manager, Cost Reduction Program
2. the members of the committee consist of the heads of the four major divisions
3. the members of the committee appoint chairmen of sub-committees in their specific areas
4. the purposes of the committee be to:
   a. serve as an advisory committee for establishing a program
   b. advise, guide, and assist the chairman and the sub-committees
   c. serve as the clearinghouse for the program
   d. develop guidelines and procedures for effective cost surveillance

5. the committee meet frequently, until the program would be fully planned, and then at regular times as determined by the chairman, to review the operation
6. advisors and consultants from business and industry be invited to participate on items related to their specialties
7. staff personnel from the school system and from other organizations be invited to participate on items related to their interests
8. "Project Writers," as provided by the "Equivalent Credits Program," work under the direction of the Manager, Cost Reduction Program. Such project writers would be eligible to receive equivalent credits for successful research, writing, and other program related activities
9. a report of operations be prepared on a periodic basis

Special Area Sub-Committees on Cost Reduction

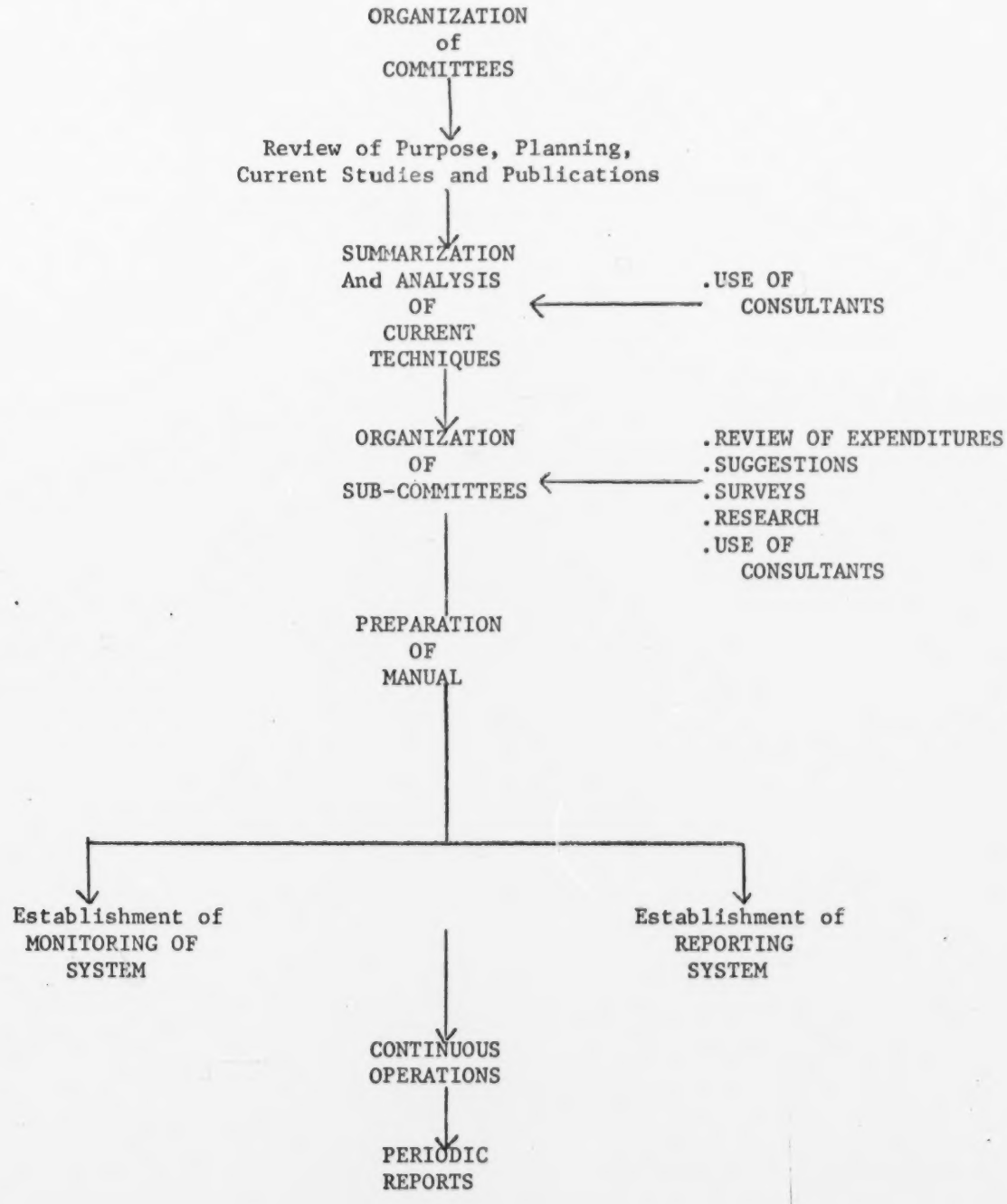
It is proposed that:

1. members of the sub-committees consist of:
    a. staff personnel in the specific area, on a representative basis
    b. personnel from other areas in order to foster the exchange of ideas
2. the purposes of the sub-committees be to:
    a. examine the particular area and to make recommendations to the appropriate Assistant Superintendent
    b. forward reports to and meet with the Cost Reduction Program Committee
    c. conduct surveys, solicit suggestions, interview personnel, and engage in related activities
    d. make recommendations to the appropriate Assistant Superintendent for proposed operational implementation of cost reduction practices

7. Major Steps in Program Implementation

and Operational Procedure

Major steps in implementing the program may be visualized as follows:



8. Some Procedures and Techniques of the Program - General

Whether the organization is a business, an industry, or a public school system, some general cost reduction procedures would seem to be common. Those listed below are suggestive, with some significance to a school system.

1. efforts to control costs
    a. by establishing tables of allowances which would determine what personnel, services, equipment, and materials would be standard for schools
    b. by compiling approved lists of equipment and supplies at various levels of the school system, with recommended specifications designed for the specific need
        Ex. an analytical balance in science would be approved for senior high science
    c. by controlling inventory to determine the optimal placement of equipment
    d. by establishing "central lending centers" for specialized instructional and non-instructional equipment
        Ex. professional library-type books
        instructional media center

2. efforts to reduce costs

a. by purchasing a minimum number of units of service, equipment, or materials without curtailing requirements

b. by reducing service or equipment when not needed

c. by developing a more efficient use of resources

d. by planning for better utilization of equipment

e. by eliminating duplication of expenses

Ex. Establishing an automobile pool system for attending conferences so that two cars would not be used when only one is needed

f. by utilizing modern techniques of operation

(1) data processing

(2) word processing - centralized

(a) duplicating

(b) printing

(c) filing

(d) microfilming

(e) records control

(f) forms control

(g) reports control

(3) in-service management programs

g. by planning instructional and security programs for control of

(1) vandalism

(2) theft

(3) damage and loss

3. examining sources of income from

   a. fees

   b. tuition

   c. publications

   d. disposal of excess and surplus property

   e. assessments for replacement of lost or damaged books, equipment, and materials

   f. rentals

   g. grants

4. exploring sources of free or lower-cost materials

   a. government surplus

      (1) federal
      (2) state
      (3) municipal

   b. auctions of equipment

   c. discount jobbers

   d. governmental agency manufacture

      (1) trade schools

      (2) correctional institutions

   e. school system manufacture

   f. general stores <u>vs</u> specialized stores

      <u>Ex.</u> simple science equipment such as batteries, balloons, and electrical supplies purchased at a lower cost at local stores rather than from science equipment houses

   g. gifts

   h. local industry

5. exploring sources of volunteer or lower-cost human resources

    a. volunteers

    b. business-industry programs

        (1) loaned executives

        (2) liaison

        (3) consultants

    c. vendor management consultants

    d. exchange programs

    e. intern programs

    f. apprentice programs

    g. pupil involvement in various areas including

        (1) cooperative maintenance

        (2) grounds beautification

        (3) within-school-system work-study programs

            (a) clerical

            (b) library

            (c) teacher aide

            (d) laboratory assistant

        (4) conservation of school resources

9. Some Procedures and Techniques of the Program - Specific

While the most logical place to start to reduce costs is a place where the greatest cost reduction can be made, this may not always be obvious at first glance. In that event, items of major expense or items most frequently used would be reviewed.

It is anticipated that the implementation of the cost reduction program within the school system would be conducted by the several sub-committees mentioned earlier; that is, it would be conducted in several areas simultaneously.

A suggested procedure would be to:

1. identify specific cost centers within the area under review
2. identify responsibility centers - positions or individuals who are responsible for the job and for the costs
3. determine current practice on a quantitative basis for regulating expenditures within that area
4. determine whether or not the expenditure is monitored or how it might be monitored
5. determine how the expenditure is reported or how it might be reported
6. determine reasonable variances above or below expected costs
7. explore possible methods of reducing costs
8. review alternatives used in other school systems and in business and industry, with reactions of the sub-committee to these alternatives

An example might be as follows:

COST REDUCTION ANALYSIS FORM

COST CENTER: Purchasing of Instructional Equipment

RESPONSIBILITY CENTER:

Division of Instruction

CURRENT BASIS FOR EXPENDITURE:

Request of individual school or division

MONITORING:

By Principal, Director, and Supervisor

REPORTING:

By Principal, Director, and Supervisor

VARIANCES:

Emergency expenditures may be permitted in individual school cases with central office approval. The total budget allotment can not be exceeded.

METHODS OF COST REDUCTION USED BY WPS:

1.
2.
3.

OTHER POSSIBLE IMMEDIATE METHODS OF COST REDUCTION:

1.
2.
3.

METHODS USED BY OTHER AGENCIES:

1.
2.
3.

COMMENTS ON APPROPRIATENESS OF METHOD TO WPS

Some Specific Areas for Review

Listed below are some areas of the school system representing variable expenditures, which would be subject to routine review.

Personnel

- -substitutes
- -overtime

Personal Services

- -consultants

Purchasing

- -local purchase of science items
- -pooling of orders
- -single entry of orders
- -property and inventory control

Supplies

Equipment

Postage

- -use of low cost rates
- -alternative use of WPS mailing system
- -bulk mail permit
- -business reply permit

Telephone

- -optional equipment
- -tolls

Electricity

Mileage

- -avoidance of duplication of auto use

Subscriptions

- -approved list
- -duplication control

Books

- -greater use of paperbacks
- -professional library as alternate to individual purchases

Printing

Communications

- -investigations of Word Processing techniques
- -use of inter-office envelopes
- -use of window mailing envelopes
- -use of stored mailing lists

Community Services

10. Some Specific Techniques Having Cost Reduction Implications, Used in School Systems*

Many of the following techniques are suggested in the article footnoted below, which represents a most comprehensive source of this type. Some of the techniques will be recognized as currently being implemented in the Worcester Public Schools.

Personnel

1. Utilization of Instructional Personnel

   a. Class Size - the setting of class size limits

   b. Differentiated Staffing - the use of master and senior teachers, staff teachers, associate or beginning teachers, and teacher aides

   c. Modifications in Curriculum

      (1) Senior Option Plans - last semester independent study, research or other productive activity

      (2) Independent Study

      (3) Open Campus

   d. Curriculum Development - use of curriculum advisory services to avoid reinventing curriculum and materials

   e. Administrator Classroom Program - administrators serve for example, 3 days per year in the classroom on a schedule related to substitute need

   f. Instructional Technology - greater use to support individualized instruction

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*Economies in Education, A Report for the President's Commission on School Finance, prepared by Cresap, McCormick, and Paget, Inc., New York, N. Y., 1971. This study also is reviewed in Nations Schools, Vol. 90, No.2, August 1972, p.25.

2. Utilization of supportive personnel

   a. Formulas for determining number of personnel based upon systematic analyses of work volume

   b. Manuals of duties, procedures, and standards for work products

   c. Preventive maintenance programs

   d. Systematic project control and schedule program

Support Services

3. Purchasing of supplies and equipment

   a. Centralized Purchasing - to obtain more favorable prices by pooling orders within the organization

   b. Systems Contracting - annual contracts with selected vendors who would supply specific items on a yearly basis

   c. Complete Awards Discounts-awarding a full order to obtain a larger discount-for example, all office supplies

   d. Purchasing Committees - to develop specifications, evaluate brands, and select products

   e. Maximum use of purchasing cycles in order to buy at lowest prices

   f. Cooperative Purchasing-with other school districts or governmental units

4. Food Services

   a. Use of central kitchens

5. Transportation

   a. Computerized bus scheduling

   b. Use of two-way radio

School Facilities

6. Utilization of school facilities

   a. Studies to utilize schools more fully

   b. Computer scheduling

7. Construction of school facilities

   a. Avoiding need through

      (1) Scheduling modifications, such as

         (a) Year-round use of schools

         (b) 4-day-per-week pupil schedule

         (c) Extending school day by 1 or 2 periods

      (2) Remodeling

      (3) Conversion of nearby buildings

      (4) Rental and free space

   b. Reducing size of new schools through better planning procedures

   c. Reducing costs per square foot

   d. Modular construction

   e. Joint-occupancy, cost-sharing, and site-sharing with other agencies

   f. Transferring some costs to nonschool sources (when other agencies are involved)

   g. "Fast-Tracking" - to shorten the time between start and occupancy by telescoping work steps - for example, as soon as layout drawings are completed, bids are taken on foundations and structure, and work begins - meanwhile detail drawings are done

11. The Manual of Regulations for Cost Reduction

A basic product of the program would be the manual of regulations for cost reduction: a document which would summarize in appropriate form all of the procedures to be in effect to accomplish the purposes of the program.

The manual would be specific with respect to operating procedures for the various divisions of the school system.

Revisions of the manual would be a result of periodic review by the Cost Reduction Program Committee.

An example of a simple entry might be:

"SUBJECT: Communications

.
.
.

3. United States Mail

a. Matter sent through the U.S. Mail should be designated for dispatch via the lowest eligible rate. Specific attention is directed to the advantages of rates for "Books" and "Educational Materials."

b. U.S. Mail should not be used:

(1) when the addressee can receive the mail without disadvantage through the WPS mailing system or through the municipal mailing system."

The Manual would become part of the in-service training program for all new employes.

12. The Monitoring System

Once a specific procedure would be determined in the Cost Reduction Program, it would be the purpose of The Monitoring System to observe the efficiency and the adherence to the procedure.

Each item of significance would be monitored.

In many instances an appropriate person in a particular position would be assigned by division or department administrators, the responsibility of monitoring expenses related to a particular item.

For example, if the size of secondary school academic classes is set at "25," the monitoring of these class sizes on a periodic basis by the division of instruction would reveal any need for decision making should the sizes fall below the predetermined figure.

The Monitoring System would relate directly to the Reporting System.

13. The Reporting System

The Reporting System would operate through the preparation of charts and statistical summaries related to expenditures which represent

1. accounts of largest cost
2. items which are most frequently used
3. items which are considered most appropriate for cost reduction
4. items of special interest

Pertinent observations and recommendations would accompany these reports. Comparisons over several reporting periods would be provided.

Reports would be provided in such specimen areas as:

1. payroll accounts
2. overtime accounts
3. use of substitutes
    a. fringe benefit coverage
    b. other uses of substitutes
4. size of classes
5. number of personnel
6. staff-pupil ratios
7. costs per pupil
8. utilities
9. emergency expenditures
10. sources of income
11. vandalism and theft

These reports should:

1. represent significant data
2. offer opportunity for cost analysis and possible action
3. be simple and concise in form

Reports of this type provide information on major operations. which can become the basis for improved decision making related to cost reduction. Some specimens of reporting forms actually used in school systems and business are shown in the following pages.

SPECIMEN

Number of Service Staff

School	Employed	Needed By Formula
High School	14	13.7
Middle Elementary	13	10.5
Primary A	5	3.0
B	5	4.2
C	5	3.2
D	5	4.0
E	5	3.2
Total	52	41.8

NOTE: As a result of the analysis above, a more efficient scheduling of staff was accomplished.

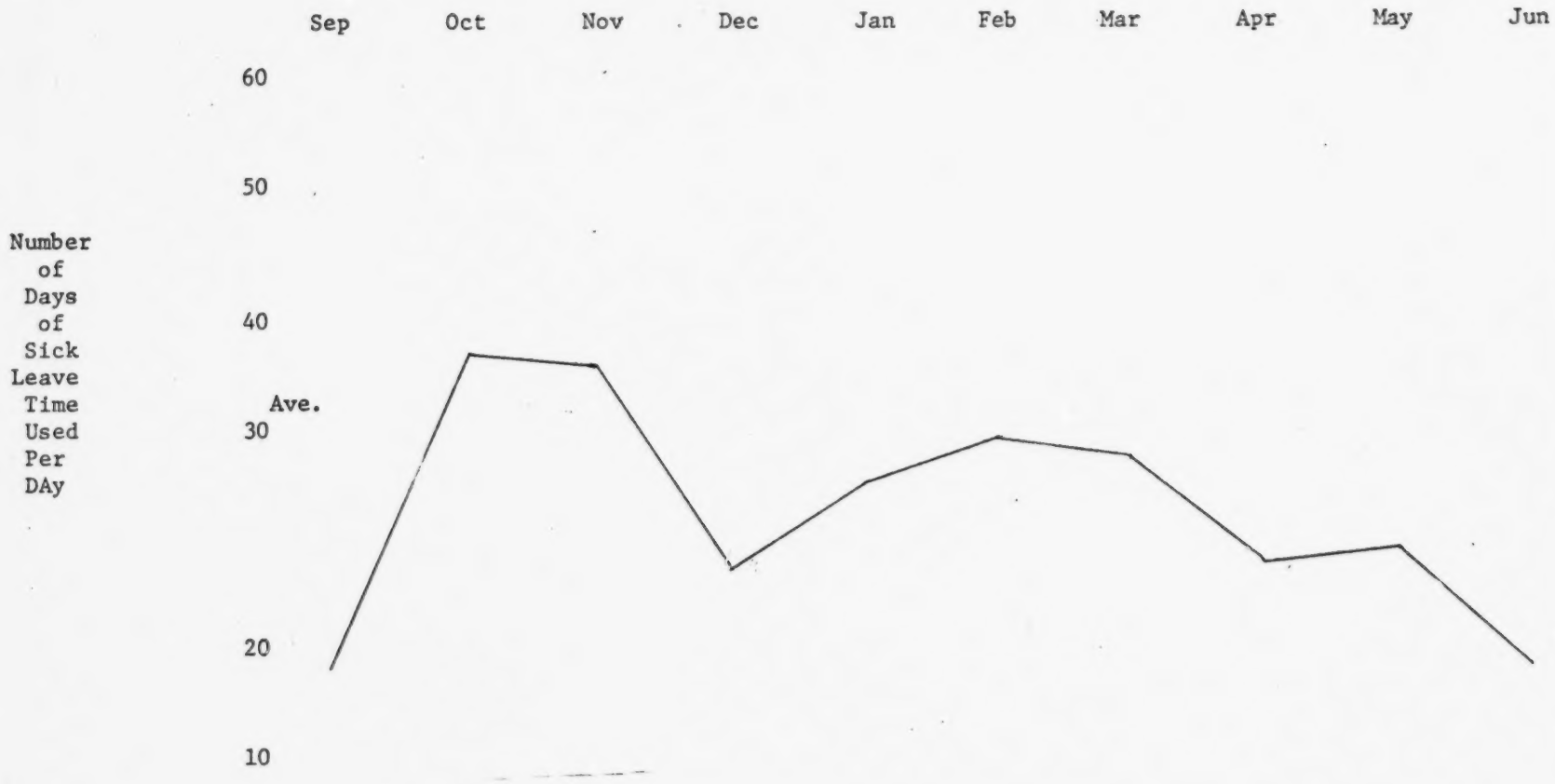
SPECIMEN

REPORT OF TELEPHONE CHARGES

1971	Charges on Dialed Calls	Local Toll Calls	Long Distance Calls	Moving Telephone Equipment	Rental of Telephone Equipment	Total
January						
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						

NOTE: This chart was used by a business to analyze its telephone expenses. As a result, changes were made which improved efficiency and reduced costs.

Figure 2. Daily Rate of Use of Sick Leave With Pay by Teachers and Administrators, September to June, 1957-1958 1/



1/Based upon data in column (8), Table 17, page 29.

SPECIMEN

SPECIMEN

Table 1. Total Amount of Sick Leave Used by All Employees

Item	Amount
(1)	(2)
Number using	1137
Number of employees	1584
Per cent using	71.8
Days with pay	7663¼
Per person using:	
Mean	6.7
Median	4.0
Mode	1.0
Per employee:	
Mean	4.8
Days without pay	777
Total days	8440¼

14. Estimated Cost of Implementation

Personnel	
Consultants	
Books, materials, subscriptions	$100.00
Supplies	

15. Time Schedule for Implementation

_____ Date of final approval of Cost Reduction Program by School Committee

_____ Assigning of "Manager, Cost Reduction Program"

+_____ Cost Reduction Program Committee-Organization Meeting

+_____ Sub-Committees-Organization Meetings

+_____ CRP Manual - preparation

+_____ Monitoring System - Establishment
Reporting System - Establishment

+_____ Manual - first draft

+_____ Periodic Report - first

+_____ Manual - completion